PDR RID Report

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Review FOS
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Priority 2

Section N/A **Page** N/A **Figure Table** N/A

Category Name Design **Actionee** HAIS

Sub Category

Subject Quantification of Expandability

Description of Problem or Suggestion:

The all too brief discussion of expanding the FOS to handle more than one spacecraft alluded to changing a subset of the 298K lines of code. However, the objects affected were not identified, nor was the impact (I understand the impact on lines of code was around 7 per cent). The hardware and personnel impacts were omitted or given very little attention. The inexpensive expansion of the EOS FOS to handle many (admittedly TBD) spacecraft is crucial to the success of the EOS mission. That capability was not demonstrated.

Originator's Recommendation

Prior to CDR, present a white paper addressing this shortcoming. Include an operations concept which shows EOS AM-1 operations and how the FOS would grow to accommodate N spacecraft in M years (N and M are around 3 to 6; pick a strawman example for illustration purposes).

GSFC Response by: **GSFC Response Date**

HAIS Response by: D. Herring **HAIS Schedule** 1/20/95

HAIS R. E. A. Miller **HAIS Response Date** 1/24/95

The FOS design is based on providing an architecture that can be scaled to support future missions. This scalability pertains to software, hardware, and operations. In particular, the architecture enables computers procured for the AM-1 mission to be shared with processing required to support future missions -- e.g., a single Real-Time Server could concurrently perform telemetry and command processing for both AM-1 and PM-1. Similarly, operations has the flexibility to assign their personnel to monitor two spacecraft concurrently. For example, a single operator could monitor the Power subsystem for both AM-1 and PM-1 on the same User Station display.

The software design can be extended using the object oriented principles of inheritance and encapsulation that foster software reuse. The development of the object models was made to accentuate these OO principles. It is anticipated that are large percentage of the application software can be reused on future missions augmented with mission-specific software. This approach to reuse has been proven on previous heritage missions including PORTS (NASA), GIMTACS and PACS (NOAA), and N-STAR (commercial), as well as on the TPOCC program.

The current contract provides system engineering to consider how FOS can be used to support future spacecraft. The specific hardware, software, and operations to support these additional spacecraft will be baselined after future Change Orders have been authorized.

Status **Closed** **Date Closed** **2/1/95** **Sponsor** **Johns**

****** **Attachment if any** ******